

## LARVAL AND PUPAL DESCRIPTIONS OF *DOLOPHILODES (FUMONTA) MAJOR* (BANKS) (TRICHOPTERA: PHILOPOTAMIDAE)<sup>1,2</sup>

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**ABSTRACT:** The larva and pupa of *Dolophilodes (Fumonta) major* (Banks) are described and figured. The immatures are indigenous to seepage springs. Records show that this species occurs throughout the central and southern Appalachian Mountains of Georgia, North Carolina, South Carolina, Tennessee, and Virginia.

### *Dolophilodes* Ulmer

The genus *Dolophilodes* is composed of seven subgenera (Ross 1956). The larvae of four of these are described. Cowley (1978) described the larvae of *D. (Hydrobiosella) stenocerus* Tillyard and *D. (Hydeobiosella) mixtus* Cowley. Barnard (1934) made known the larva of *D. (Thylakion) urceolus* (Barnard). For a description of *D. (Dolophilodes) distinctus* (Walker) see Wiggins (1977). The larval description of *D. (Fumonta) major* (Banks) is given herein. All of these larvae share the character state of having an extended fingerlike foreleg trochantin. Among other philopotamid genera for which larvae are known, only *Philopotamus* shares this characteristic (c.f. Hickin [1967], for the larval description of *P. montanus* [Donovan]). In other genera, the foreleg trochantin is reduced as in larvae of *Wormaldia* and *Chimarra* (Wiggins 1977).

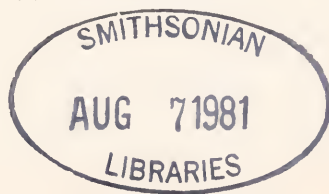
Because the larva of *D. major* has a notch in the anterior margin of the frontoclypeus, which is also typical of many *Chimarra* species, existing larval keys for the Philopotamidae of North America cannot rely solely on characters pertaining to the anterior margin of the frontoclypeus. Thus, for identification purposes, emphasis also should be placed on the characteristic of the foreleg trochantin, since all known Nearctic larvae which have the foreleg trochantin greatly extended as a fingerlike process are *Dolophilodes*. This genus is represented by nine species in North America.

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*Dolophilodes (Fumonta) major* (Banks)

The larva of this species may be distinguished from that of *D. distinctus* by the shape of the anterior margin of the frontoclypeus. In *D. major* it has a deep right notch, as in many species of *Chimarra*, whereas in *D. distinctus* it is only slightly asymmetrical. It can be distinguished from *Chimarra* larvae on the basis of having an extended fingerlike foreleg trochantin and lacking a seta-bearing process on the foreleg coxa. The ventral head seta #18 (*sensu* Wiggins, 1977) in *Chimarra* is adjacent to the posterior edge of the ventral apotome; in *D. major* this seta is near the midlength position of the ventral ecdysial line. This seta is more stout in *D. major* than in *D. distinctus*.

The pupa of *D. major* has mandibles similar to those of *D. distinctus*, but differs by having a small pair of dorsal hook plates on abdominal segment VIII. Also the labrum of *D. distinctus* is rounded distally, whereas that of *D. major* is truncated. The male genitalia of *D. major* are illustrated by Ross (1956: fig. 29 A, B, C.).

**LARVA** — (Figures 1 A, B, C, D; 2). Overall length of final instar approximately 15.0 mm. Head: head capsule chestnut brown; some individuals immaculate, others with a few faint muscle scars mesally and posteriorly; lateral margins slightly curved; length 2.0, width 1.3 mm; maximum length of frontoclypeal sclerite subequal to the width of head; anterior margin of frontoclypeus asymmetrical with a deep right notch; antenna bifercate, resembling two separate fingerlike projections which are separate basally and evidently converge internally from the surface of the cuticle. This type of larval antenna is unique among Trichoptera larvae of the Philopotomidae and Stenopsychidae, (Hickin, 1967: fig. 258), (Nielsen, 1942: fig. 36 A, B), (Ulmer, 1957: fig. 299, 326), and (Wiggins, 1977: fig. 13.3 B). The ventral head seta #18 is located near the middle of the ventral ecdysal line. A sensory pit is located anterior to seta #18. Thorax: foreleg trochantin robust and freely extended as a fingerlike process; trochanter, femur, and tibia each bearing a pair of ventral spines; femur longer than tibia; tibia longer than tarsus.

**PUPA** — (Figure 3 A, B, C). Overall length approximately 12 mm, color light orange-brown. Head: labrum is truncated distally; mandibles each with four evenly spaced apical teeth. Abdomen: anterior dorsal hook plates on segment III-VIII; posterior dorsal hook plates on segment V; terminal processes membranous. The claspers occupy a pair of large membranous lobes extending well beyond the tip of the abdomen (fig. 3A). Such lobes would not be found in the female pupa.

### Distribution and Habitat

The range of this species includes the Appalachian Mountains of Georgia, North Carolina, South Carolina, Tennessee, and Virginia. The habitat of *D. major* is shallow seeps which trickle over steep areas along the banks of streams. This unusual aquatic habitat explains why the immatures of this relatively common species are rarely collected.

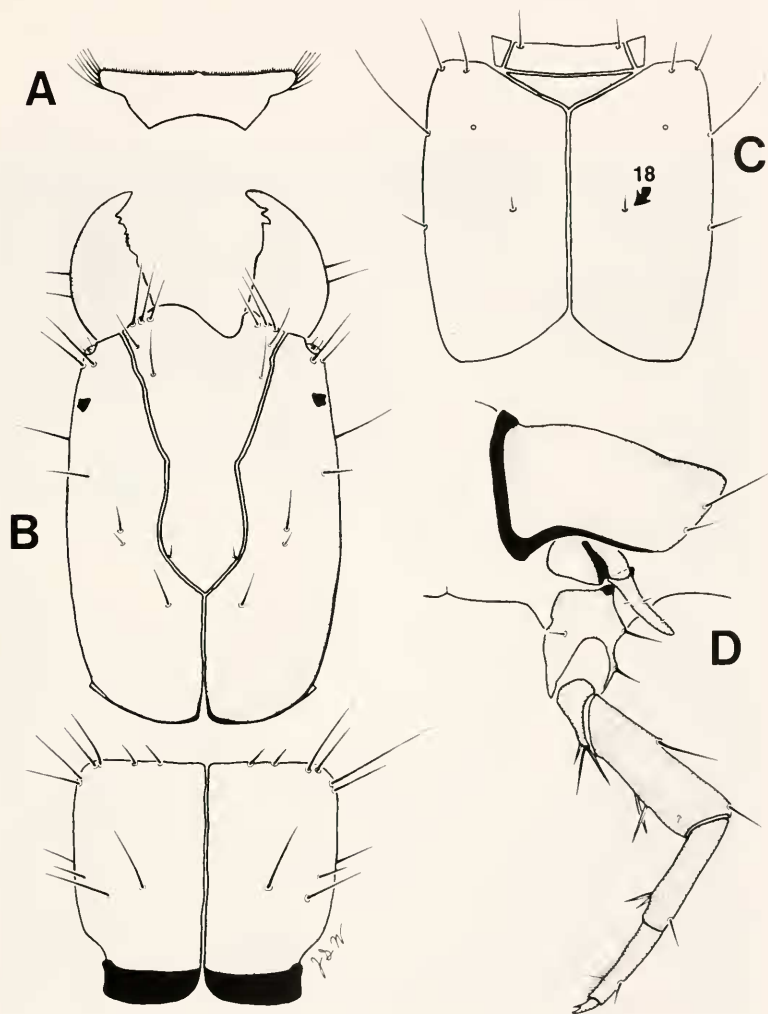


Figure 1. *Dolophilodes major* (Banks). Larva: A) labrum; B) head and pronotum, dorsal view; C) head, ventral view; D) foreleg and prothorax, lateral view.

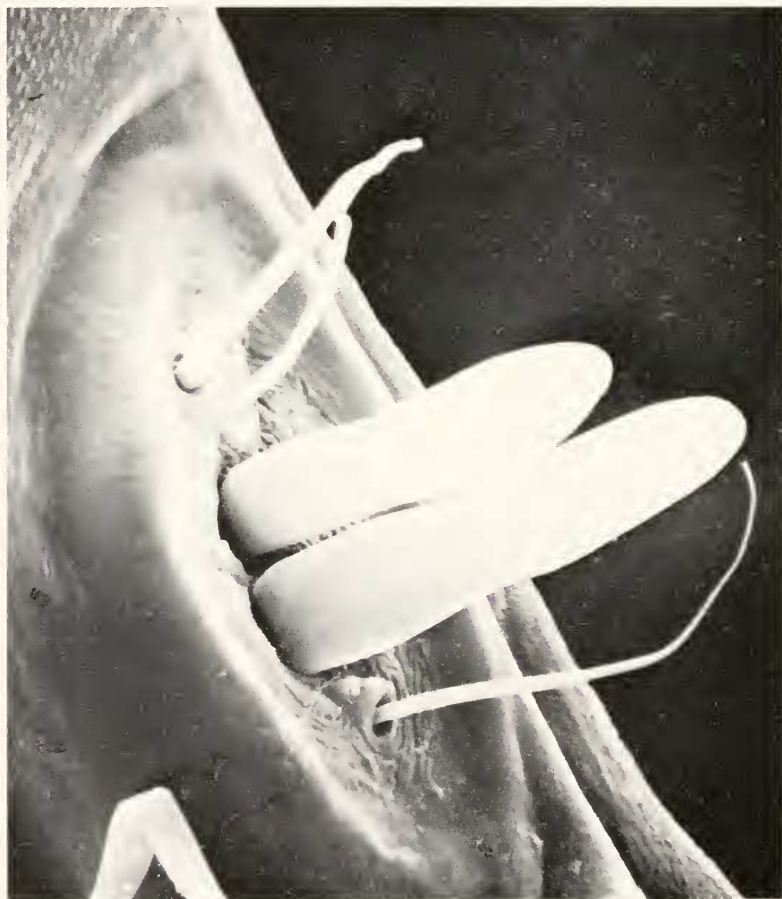


Figure 2. *Dolophilodes major* (Banks), Larval antenna, SEM micrograph, right lateral view of head at 1000 X.

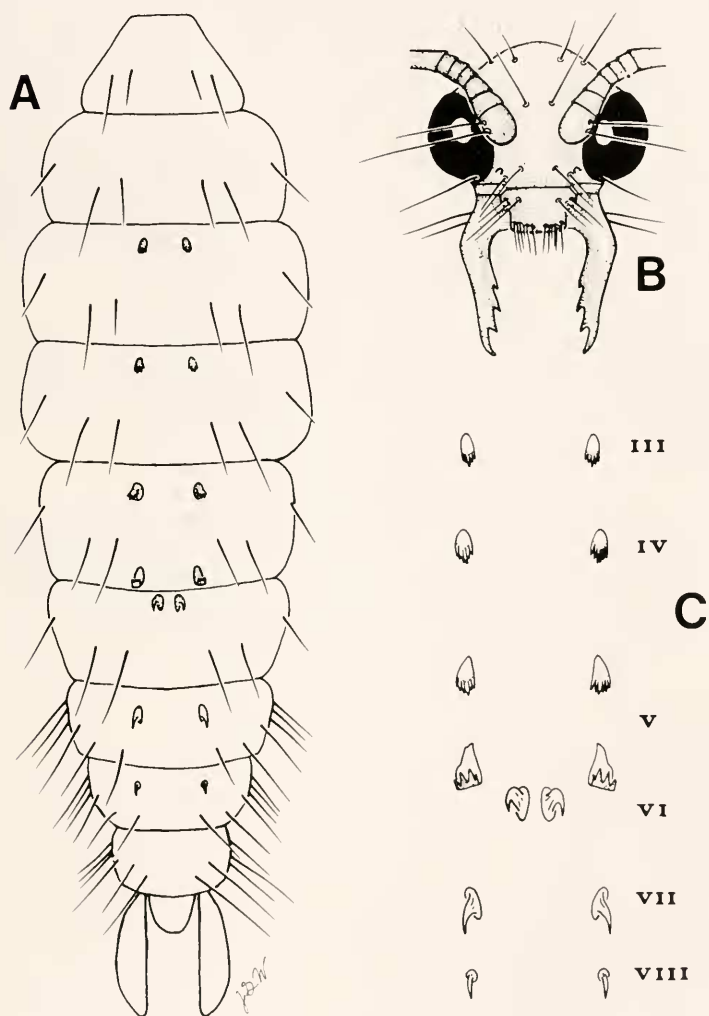


Figure 3. *Dolophilodes major* (Banks), Pupa: A) abdomen, dorsal view; B) head; C) abdomen, dorsal hook plates.

## Material Examined

GA: Union Co.: Vogel State Park, Wolf Creek, 30-31 May 1980, 6♂, 1♀, light trap, coll. J.C. Morse *et al.*, NC: Swain Co.: Great Smokey Mountain National Park, Deep Creek Campground, 1.5 mi. N Bryson City, 21 May 1970, 4♂, coll. O.S. Flint, SC: Pickins Co.: Wildcat Creek, 5 mi NW Clemson, 5-6 May 1979, 2♂, 2♀, light trap, coll. T.R. White and J.S. Weaver III; Rocky Bottom, Reedy Cove Creek, 6 September 1979, 1 larva, coll. J.C. Morse; Table Rock State Park, Carrick Creek, 21 May 1969, 1♂, coll. J.C. Morse. Oconee Co.: Small springbrook above Wash Branch of Towns Creek, 5 mi., NW Tamassee, elev. 2200 ft., 2-3 June 1980, 1♂, coll. E.M. McEwan and J.S. Weaver III. TENN: Carter Co.: Roan Mountain State Park, Small tributary of Dave Miller Hollow Branch, 7 May 1977, 1 larva, coll. J.A. Wojtowicz, R.L. Jones, and W.H. Redmond; Twin Springs on Roan Mountain, 5.8 mi. S. Roan Mountain (town), elev. 4200 ft., 6 May 1977, 1 larva, coll. J.A. Wojtowicz, R.L. Jones, and W.H. Redmond. Monroe Co.: seep at wooden low water bridge, South Fork Citico Creek, 5 April 1970, 1 larva, coll. J.A. Wojtowicz and R.L. Jones; 11 May 1979 1♂, 2♀ pupae, coll. J.A. Wojtowicz, D.A. Etnier *et al.* Sevier Co.: Great Smokey Mountain National Park, Walker Prong, elev. 4500 ft. small seep near West Prong Little Pigeon River, 4 July 1979, 1♂ pupa, 1♀ pupa, coll. J.S. Weaver III; LeConte Creek 4 mi. SE Gatlinburg, 5 June 1973, 1♂, coll. D.A. Etnier, VA: Shenandoah National Park, Lewis Falls, 29 June 1958, 1♂, coll. G.W. Byers; Grayson Co., Fox Creek, 1.7 mi. W Trout Dale, 12 June 1979, 1♂, 1♀, coll. C.M. and O.S. Flint; Rapahannock Co., Washington, 24 July, 1♂, 1♀, coll. J.H. Roberts.

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